

IN THE CLAIMS:

1.-5. (Cancelled)

6. (Currently Amended) A superconducting ceramic of the general formula

$(A_{1-x}B_x)_yCu_zO_w \cdot (A_{1-x'}B'_x)_y'Cu_{z'}O_{w'}$

in which $0.1 < x < 1$ $0.1 \leq x < 1$

$0.1 < x' < 1$ $0.1 \leq x' < 1$

$y = 2.5-3.5$,

$y' = 2.5-3.5$,

$z = 1.5-3.5$,

$z' = 1.5-3.5$,

$w = 6.0-8.0$,

$w' = 6.0-8.0$,

A is one rare earth element and

B and B' are two or more alkaline earth elements,

wherein the superconducting ceramic has the stoichiometric formula $YbBaSrCu_3O_{6.8}$.

7. (Cancelled)

8. (Currently Amended) A superconducting ceramic of the general formula

$(A_{1-x}B_x)_yCu_zO_w \cdot (A_{1-x'}B'_x)_y'Cu_{z'}O_{w'}$

in which $0.1 < x < 1$ $0.1 \leq x < 1$

$0.1 < x' < 1$ $0.1 \leq x' < 1$

$y = 2.5-3.5$,

$y' = 2.5-3.5$,

$z = 1.5-3.5$,

$z' = 1.5-3.5$,

$w = 6.0-8.0$,

$w' = 6.0-8.0$,

A is one rare earth element and

B and B' are two or more alkaline earth elements,
wherein the superconducting ceramic has the stoichiometric formula $\text{YbBa}_{0.7}\text{Sr}_{0.6}\text{Ca}_{0.6}\text{Cu}_3\text{O}_{6-8}$.

9. (Cancelled)

10. (Currently Amended) A superconducting ceramic of the general formula

$(\text{A}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w \cdot (\text{A}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$

in which $0.1 < x < 1$ $0.1 \leq x < 1$

$0.1 < x' < 1$ $0.1 \leq x' < 1$

$y = 2.5-3.5$,

$y' = 2.5-3.5$,

$z = 1.5-3.5$,

$z' = 1.5-3.5$,

$w = 6.0-8.0$,

$w' = 6.0-8.0$,

A is more than one rare earth element and

B and B' are two or more alkaline earth elements,

wherein the superconducting ceramic has the stoichiometric formula $\text{Y}_{0.5}\text{Yb}_{0.5}\text{BaSrCu}_3\text{O}_{6-8}$.

11. (Currently Amended) A superconducting ceramic of the general formula

$(\text{A}_{1-x}\text{B}_x)_y\text{Cu}_z\text{O}_w \cdot (\text{A}_{1-x'}\text{B}'_{x'})_{y'}\text{Cu}_{z'}\text{O}_{w'}$

in which $0.1 < x < 1$ $0.1 \leq x < 1$

$0.1 < x' < 1$ $0.1 \leq x' < 1$

$y = 2.5-3.5$,

$y' = 2.5-3.5$,

$z = 1.5-3.5$,

$z' = 1.5-3.5$,

$w = 6.0-8.0$,

$w' = 6.0-8.0$,

A is more than one rare earth element and

B and B' are two or more alkaline earth elements,

wherein the superconducting ceramic has the stoichiometric formula $Y_{0.5}Yb_{0.5}BaCaCu_3O_{6-8}$.

12. - 17. (Cancelled)

18. (Currently Amended) A superconducting ceramic of the general formula

$(A_{1-p}A'_p)_{1-x}B_x)_yCu_zO_w$

in which $0.1 < x < 1$ $0.1 \leq x \leq 1$

$0 < p < 1$

~~$z = 2.0-4.0$~~

~~$w = 4.0-10.0$~~ ,

$y = 2.5-3.5$,

$z = 1.5-3.5$,

$w = 6.0-8.0$,

A and A' are different rare earth elements and

B is an alkaline earth element,

wherein the superconducting ceramic has the stoichiometric formula $Y_{0.5}Gd_{0.5}Ba_2Cu_3O_{6-8}$.

19. (Currently Amended) A superconducting ceramic of the general formula

$(A_{1-p}A'_p)_{1-x}B_x)_yCu_zO_w$

in which $0.1 < x < 1$ $0.1 \leq x \leq 1$

$0 < p < 1$

~~$z = 2.0-4.0$~~

~~$w = 4.0-10.0$~~ ,

$y = 2.5-3.5$,

$z = 1.5-3.5$,

$w = 6.0-8.0$,

A and A' are different rare earth elements and

B is an alkaline earth element,

wherein the superconducting ceramic has the stoichiometric formula $Y_{0.5}Yb_{0.5}Ba_2Cu_3O_{6-8}$.

20. (Previously Presented) A method for producing a superconducting ceramic according to claim 18, which comprises mixing together stoichiometric amounts of the oxides and/or carbonates of the constituent metals, in powder form, compressing the mixture to a shape and sintering the mixture at an elevated temperature.

21. (Cancelled)

22. (Previously Presented) A method for producing a superconducting ceramic according to claim 19, which comprises mixing together stoichiometric amounts of the oxides and/or carbonates of the constituent metals, in powder form, compressing the mixture to a shape and sintering the mixture at an elevated temperature.

23. (Previously Presented) A superconducting ceramic comprising rare earth atoms, alkaline earth atoms, copper atoms and oxygen atoms wherein said superconducting ceramic is formed in a layer structure a unit cell which includes two layers formed of a copper oxide and wherein a superconducting carrier flows along said two layers.

24. (Previously Presented) The ceramic of claim 23 wherein said rare earth atoms are yttrium atoms.

25. (Previously Presented) The ceramic of claim 23 wherein said alkaline earth atoms are barium atoms.

26. (Previously Presented) The ceramic of claim 23 wherein said rare earth atoms are selected from among the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Sc and Y.

27. – 30. (Cancelled)

31. (Previously Presented) A superconducting ceramic comprising rare earth atoms, alkaline earth atoms, copper atoms and oxygen atoms, wherein said superconducting ceramic

is formed in a layer structure a unit cell of which includes two layers formed of a copper oxide, wherein superconductivity results from electrons in a layer-like structure which is formed by the oxygen atoms surrounding each central copper atom.

32. (Previously Presented) The ceramic of claim 31 wherein said rare earth atoms are yttrium atoms.

33. (Previously Presented) The ceramic of claim 31 wherein said alkaline earth atoms are barium atoms.

34. (Previously Presented) The ceramic of claim 31 wherein said rare earth atoms are selected from among the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Sc and Y.

35. – 38. (Cancelled)